

### Claims

1. Method of producing nanostructures in membranes in which  
a membrane consisting of a polymer material is irradiated with charged particles,  
especially ions, to produce particle tracks,  
the particle tracks of the membrane are etched using an etching liquid,  
the etching operation is stopped using a stop liquid,  
in such a manner that asymmetrical structures are formed,  
characterised in that polyimide is used as the membrane material.
2. Method according to claim 1, characterised in that the polyimide used is Kapton.
3. Method according to claim 1 or 2, characterised in that the etching liquid used is NaOCl solution.
4. Method according to any one of claims 1 to 3, characterised in that the stop liquid used is a reducing agent, such as a solution of the redox type with KI,  $\text{NO}_2^-$ ,  $\text{S}_2\text{O}_3^{2-}$  or  $\text{Mn}^{2+}$ .
5. Membrane having asymmetrical pores, consisting of polyimide and produced in accordance with the method according to any one of claims 1 to 4.